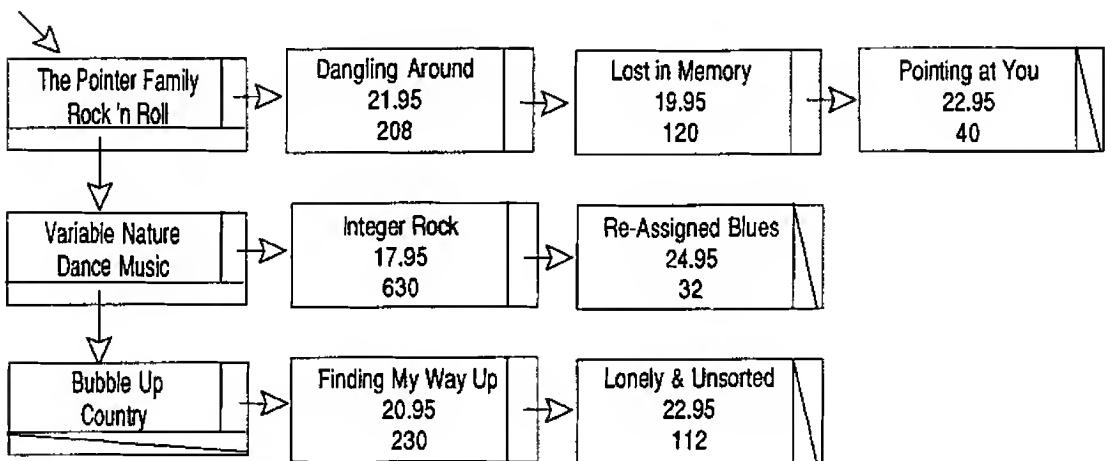


14 ~ 9. A local music store is in the process of developing a database program for managing their inventory of compact disks. Each artist/group is to be described by:

- name of the artist/group,
- category of music, and
- a list of the compact disks that they have produced where each disk is described by:
 - title,
 - retail cost, and
 - number of disks in stock.

A computer science student enrolled at a local university recommended that a linked data structure with two different types of nodes be used to represent this data. Unfortunately, the student has subsequently disappeared and the only written documentation accompanying this recommendation is the diagram below.



a) Provide the type definitions and var declarations for the data structure described above. (10 marks)

b) Do you agree with the recommendation that a linked data structure be used to represent this information? If yes, why? If not, what type of data structure would you recommend and why? (4 marks)

18 10. A local convenience store is conducting a study of the traffic flow in their store. For a one-week period, this company recorded the total number of individuals entering their store on an hourly basis. Since the hours of operation for this store are Monday through Friday, 9:00 a.m. to 6:00 p.m., each working day was divided into nine one-hour time slots.

An adventurous employee began to tackle the analysis of this data by writing a program that stores the data collected in this study in a two-dimensional array with dimensions 5 X 9 (where the first dimension represents the five days of the week that the store is open and the second dimension represents the nine one-hour time slots during each working day). You have been hired to write a subprogram to determine which of the nine one-hour time slots, throughout the one-week period, has the greatest number of individuals entering the store.

```
type
  table = array[1..5,1..9] of integer;
var
  A:table;
```

For example, suppose that the data for a one-week period, stored in array A, is as follows:

	hour 1	hour 2	hour 3	hour 4	hour 5	hour 6	hour 7	hour 8	hour 9
(Monday)	2	7	9	20	17	12	8	9	6
(Tuesday)	3	5	3	17	18	15	9	9	5
(Wednesday)	1	8	5	15	16	14	12	6	8
(Thursday)	4	3	10	25	20	23	18	20	17
(Friday)	8	8	5	14	13	8	6	6	2

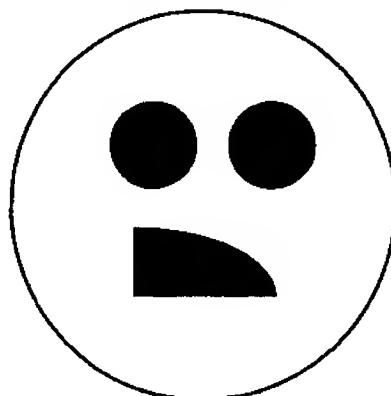
The average number of individuals entering the store for each of the one-hour time slots is:

(18/5)	(31/5)	(32/5)	(91/5)	(84/5)	(72/5)	(53/5)	(50/5)	(38/5)
3.6	6.2	6.4	18.2	16.8	14.4	10.6	10	7.6

The time slot with the greatest number of individuals entering the store on average throughout this one-week period is time slot 4, where an average of 18.2 individuals. Therefore, the function returns 4.

You should create a function named **DeterminePeakHour** that accepts a single parameter, the two-dimensional array (which has already been assigned values), and returns a single integer value indicating the one-hour time slot with the highest average number of customers.

* * * * * * * * * * The End! * * * * * * * * * *



Happy
Holidays!